

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-22. Canceled.

23. (Currently amended) A method for monitoring the progression of a plume of escaped dangerous gas, said method comprising:

transmitting sensory data from a first sensor array comprising sensors capable of producing a first response in the presence of a chemical stimulus to a remote location;

transmitting physical data from a second sensor array comprising sensors capable of producing a second response in the presence of a physical stimulus to a remote location, wherein said physical data is generated by a sensor of said second sensor array selected from the group consisting of an optical sensor, a mechanical sensor, a radiation sensor, a thermal sensor and combinations thereof; and

processing said sensory and physical data at said remote location, **wherein said processing comprises analyzing the combination of said first and second responses**, thus monitoring the progression of said plume.

24. (Currently amended) A method of monitoring an environment surrounding a nuclear facility, said method comprising:

transmitting sensory data from a first sensor array comprising sensors capable of producing a first response in the presence of a chemical stimulus to a remote location;

transmitting physical data from a second sensor array comprising sensors capable of producing a second response in the presence of a physical stimulus to a remote location, wherein said physical data is generated by a sensor of said second sensor array selected from the group consisting of an optical sensor, a mechanical sensor, a radiation sensor, a thermal sensor and combinations thereof; and

processing said sensory and physical data at said remote location, **wherein said processing comprises analyzing the combination of said first and second responses,** thus monitoring said environment.

25. (Currently amended) A method of detecting the presence of explosive materials, said method comprising:

transmitting sensory data from a first sensor array comprising sensors capable of producing a first response in the presence of a chemical stimulus to a remote location;

transmitting physical data from a second sensor array comprising sensors capable of producing a second response in the presence of a physical stimulus to a remote location, wherein said physical data is generated by a sensor of said second sensor array selected from the group consisting of an optical sensor, a mechanical sensor, a radiation sensor, a thermal sensor and combinations thereof; and

processing said sensory and physical data at said remote location, **wherein said processing comprises analyzing the combination of said first and second responses,** thus detecting the presence of explosive materials.

26. (Previously Presented) The method according to claim 23, 24 or 25, further comprising employing a sensor selection algorithm to determine sensors in said first array.

27. (Previously Presented) The method according to claim 23, 24 or 25, further comprising selecting each sensor of said first sensor array from the group consisting of a bulk conducting polymer film, a semiconducting polymer sensor, a surface acoustic wave device, a fiber optic micromirror, a quartz crystal microbalance, a conducting/nonconducting regions sensor, a dye impregnated polymeric coatings on optical fiber and combinations thereof

28. (Previously Presented) The method according to claim 23, 24 or 25, wherein said monitoring includes monitoring a leakage of volatile gases.

29. (Previously Presented) The method according to claim 23, 24 or 25, wherein said monitoring includes monitoring emission levels.
30. (Previously Presented) The method according to claim 23, wherein said monitoring includes tracking and the progression of a plume of gas.
31. (Previously Presented) The method according to claim 23 or 24, wherein said monitoring includes monitoring a perimeter.
32. (Previously Presented) The method according to claim 23, 24 or 25, wherein said monitoring includes monitoring gases selected from the group consisting of ambient air, combustible gases, natural gas, hazardous leaks, illegal substances, natural gas, smoke, anesthesia gas, sterilization gas, and combinations thereof.
33. (Previously Presented) The method according to claim 23, 24 or 25, wherein the optical sensor detects visible, near infrared, or infrared radiation, the mechanical sensor detects displacement, velocity, acceleration, force, torque, pressure, mass, flow, acoustic wavelength, or amplitude, the radiation sensor detects gamma rays, X-rays, ultraviolet rays, visible rays, infrared rays, microwaves, or radio waves, and the thermal sensor is a thermocouple.
34. (Previously Presented) The method according to claim 23, 24 or 25, further comprising taking corrective measures.
35. (Previously Presented) The method according to claim 34, wherein said taking corrective measures comprises notifying an observer.
36. (Previously Presented) The method according to claim 35, wherein said notifying comprises providing a visual or an audible alarm.